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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/602,814	11/20/2000	Masao Takeuchi	82493.0002	9608

7590 02/20/2003  
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EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 02/20/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/602,814

Applicant(s)

TAKEUCHI ET AL.

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 January 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 04 June 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. Both certified priority copies (entire documents) that were mailed by the applicants on June 26, 2002, were received by the USPTO on July 2, 2002 (paper #8), which was coincidentally the same day as the mailing of the prior office action (paper #7). In addition, photocopies of the first page of both of the priority documents (paper #11) were received by the USPTO on January 2, 2003.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakemi et al. (US 5,890,283).

Sakemi et al. ('283) disclose an apparatus and method for mounting electrically conductive balls, the apparatus of which includes the following structures: a positioning mechanism, a ball supply device (with bottom area less than 80% coverage due to spherical packing), a ball transfer head, a spring (force energizing device), guide shafts (moving mechanism) for moving the ball transfer head in the x- and y-directions, a workpiece with associated positioning means, a vacuum unit to hold the conductive balls (in which the suction holes have bellows-shaped openings), an ultrasonic vibrator, and a flux/adhesive reservoir (abstract; column 1, lines 7-10 and 35-67; column 2, lines 1-10; column 3, lines 42-50; column 4, lines 1-10, 26-40, and 53-65; column 5, lines 13-30; column 6, lines 10-25; and Figures 1-8). The spring resiliently supports the head, and the head is lowered and raised appropriately for subsequent adhesion to flux or

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other adhesive (abstract; column 1, lines 52-67; column 2, lines 1-10; column 5, lines 30-48; and Figures 3-5). Pressing forces F1 and F2 are established for flux adhering and ball mounting steps, respectively (column 7, lines 19-26 and 66-67; and column 8, lines 1-30). One of ordinary skill in the art would have recognized that the use of a hammer rather than the ultrasonic vibrator would also result in dislodging of the conductive balls from the workpiece, as these dislodging means are well-known functional equivalents. With regard to the clamping means and process to hold the energized force applied by the spring, one of ordinary skill in the art would have readily used the pressing force controller 62, in cooperation with rod 39 and springs 40, as a clamping means with (potential energy) energized force, such that the pressing force controller is capable of applying a clamping force with subsequent releasing of the force, at desired values, for the purpose of controlling the force on the springs that attach to the mounting head (abstract; column 4, lines 22-40 and 53-65; column 5, lines 13-30; column 6, lines 10-25; and Figure 2). Regarding the range of force values, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

6. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazato (US 5,768,775).

Nakazato ('775) discloses a mounting apparatus and method of mounting conductive balls, in which the apparatus includes the following structures: a positioning

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mechanism, a ball supply device (with bottom area less than 80% coverage due to spherical packing), a ball transfer head, a spring (force energizing device), guide shafts (moving mechanism) for moving the ball transfer head in the x- and y-directions, a workpiece with associated positioning means, a vacuum unit to hold the conductive balls (in which the suction holes have bellows-shaped openings), an ultrasonic vibrator, and a flux/adhesive reservoir (abstract; column 1, lines 7-9 and 40-67; column 2, lines 1-8 and 24-67; column 3, lines 1-67; column 4, lines 1-30; and Figures 1-3). The spring resiliently supports the head, and the head is lowered and raised appropriately for subsequent adhesion to flux or other adhesive (abstract; column 1, lines 46-56; column 2, lines 33-42 and 51-62; column 3, lines 35-42; and Figures 1-3). One of ordinary skill in the art would have recognized that the use of a hammer rather than the ultrasonic vibrator would also result in dislodging of the conductive balls from the workpiece, as these dislodging means are well-known functional equivalents. With regard to the clamping means and process to hold the energized force applied by the spring, one of ordinary skill in the art would have readily used the pressing force controller 62, in cooperation with rod 39 and springs 40, as a clamping means with (potential energy) energized force, such that the pressing force controller is capable of applying a clamping force with subsequent releasing of the force, at desired values, for the purpose of controlling the force on the springs that attach to the mounting head (abstract; column 2, lines 34-42 and 51-62; column 3, lines 6-17 and 65-67; column 4, lines 1-11; and Figure 2). Regarding the range of force values, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the

optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

***Response to Arguments***

7. The examiner acknowledges the applicants' amendment (paper #10), including a substitute specification, received by facsimile to the USPTO on January 2, 2003. The copies of the applicants' priority documents were received by the USPTO after the office action (paper #7) was submitted for mailing to the applicant on July 2, 2002 (see paragraph 1 above). The prior objections to the drawings and specification, as well as rejections under 35 USC 112, 2<sup>nd</sup> paragraph, as described in paragraphs 2-5 of the office action mailed July 2, 2002, have been overcome by the applicants' explanation which was further clarified by their amendment to the specification. Claims 1-13 remain under consideration in the application.

8. Applicant's arguments filed January 2, 2003 have been fully considered but they are not persuasive.

With regard to the applicants' arguments on pages 2 and 3 of the amendment (paper #10), the examiner agrees with the applicants with the issues of the drawings and specification being acceptable, and the explanation and response as set forth in the substitute specification are appreciated. However, on page 3 of the amendment, the examiner respectfully disagrees with the applicants' contention that both the Sakemi et al. and Nakazato references (which include similar apparatuses, as shown in their

respective Figure 2's), do not include any "clamping device" for "clamping said head". In Figure 2 (of both references), such a "clamping device" for clamping the head structure is illustrated in each reference by reference numbers 39, 40, and 62 (see paragraphs 5 and 6 above for further details, beginning with the sentence that starts, "With regard to the clamping means and process..."). Both Figure 2's of the 35 USC 103(a) references appear to be substantially the same as the applicants' Figure 4, including the lower stop 18 (discussed on page 2 of the amendment), as this structure also appears as reference number 43 in the Sakemi et al. and Nakazato references.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK

kpk

February 3, 2003

  
M. ALEXANDRA ELVE  
PRIMARY EXAMINER